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Smart Ration Distribution System

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***Abstract**: The present ration distribution framework has downsides like wrong amount of products, low processing speed, and large wait in time, material theft in ration shop. The proposed framework replaces the manual work in proportion shop. The principle goal of the planned framework is the robotization of ration shop to give straightforwardness. The proposed automatic ration shop that replaces ordinary ration cards which is based on public distribution framework. Aadhar cards are given instead of conventional ration cards. Smart card based automatic ration shop is novel approach in public distribution system (PDS) valuable for more productive, precise, and automated strategy of proportion conveyance*
Keywords: Robotization, PDS, QR code, GSM module, Raspberry pi.

I. INTRODUCTION

Most of the all-inclusive community having a ration card to buy the materials from the Ration shops. Right when get the material from the ration shop, at first need to exhibit the apportion card and they will put the sign in the ration card relies upon the materials. Regardless, in this system having two drawbacks, introductory one is weight of the material might be off base due to human botches and besides, if not buy the materials toward the finish of the month, they will arrangement to others with no recommendation to the legislature and clients. In this venture, we have proposed a Smart Ration card Based on GSM and Barcode scanner. Today we are standing up to different security related issues. GSM used to pass on the information between the two people or more than two people to update the information depends upon the necessities. Aadhar card based access control structure permits just approved or mindful persons to get the materials from ration shops. Overall system for compact correspondence (GSM) is a comprehensive recognized standard for advanced cell correspondence.

II. PURPOSE

The present ration distribution framework has downsides like wrong amount of products, low processing speed, and large wait in time, material theft in ration shop. The proposed framework replaces the manual work in proportion shop. The principle goal of the planned framework is the robotization of ration shop to give straightforwardness.

III.PROJECT SCOPE

We have built up a smart ration card, the utilization of Web Camera technique to save you the ration forgery as there are chances that the shopkeeper may additionally promote the material to a person else and take the earnings and located a few fake amount in their statistics. Barcode is utilized that incorporates the relative data and the individual demonstrate this to pursuer. The controller identified with the pursuer will exams for the customer validation. This clever ration system is unfastened from robbery because of the reality the certainties around the presented ration could be send immediately to the administration without manual sustaining utilizing (GSM) approach.

IV.LITERATURE SURVEY

The literature survey is done by us by referring some IEEE papers and some journal papers. The papers surveyed are represented in the table below.

TABLE 1 - LITERATURE SURVEY

Year	Author	Paper	Objective	Methodology
2017	Harshali P. Rane, Kavita S. Patil, AditiS. Chaudhari, PriyankaM.Pendharkar	Automated Rationing System Using Raspberry Pi	The concept of replacing manual work/job causing irregularities in public distribution system (rationing distribution system in India) by automated system which can be installed at the ration shop with ease is proposed. The conventional ration system uses AADHAR No. (QR code) for user's authentication.Using such a system, Government would have all required control/monitoring over the transactions at ration shop.	Authentication of QR code
2016	KumbharAakanksha,	Smart Ration	As there is lot of corruption involved in TPDS such as black	RFID based

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	KumavatSukanya, LonkarMadhuri, Mrs. A.S. Pawar	Card System Using Raspberry-pi	marketing of the subsidized food grains, many families do not claim their quota of food grains and many families claim the quota of other families. As a solution to above problems this paper proposes a system which is highly scalable Ration Distribution System based on embedded system. Here the conventional paper ration book is replaced with RFID based smart card. When any transaction is done by customer he/she will receive a message on his mobile through GSM technology	smart card
2016	RashmiPandhare, Mayur Rewatkar, Nikita Meghal, Nikhil bondre, AshviniAmbatkar, Akshaya Dole	Modern Public Distribution System for Digital India	Automatic Ration Materials Distribution Based on GSM and BIOMETRICS Technology to avoid the drawbacks. In this system, only authentic person can be recovered ration materials from ration shops based on the amount available in the data base. The traditional PDS is used to distribute grocery items to India's poor people who are valid ration card holders. The validity and the allocation of the ration cards are monitored by the state governments. It contains separate record for each family which includes details like no. of members in family, names of the members, head of the family, permanent address, present living address, and phone number. The main reason for using this Biometric system and making this process computerized is to remove the drawbacks of the present way of issuing products based on ration card.	Biometrics Techmology
2015	KashinathWakade, PankajChidrawar, Dinesh Aitwade	Smart Ration Distribution and Controlling	Huge amount of Govt. money get wasted due to corruption in the conventional Ration Distribution System. This paper implements a simple PDA device (personal data assistant) with RFID tag used as an e-ration card in place of a conventional ration card. This PDA device is similar to the ticketing machine used by bus conductor or bank pigmy agent and the e-ration card is similar to swipe card. The Subscriber has to use this card instead of a traditional ration card to get ration from the dealer. Efforts are put together from our side to combat corruption and to have better management of public distribution system.	PDA device
2013	S.Valarmathy, R.Ramani, FahimAkhtar, S.Selvaraju, G.Ramachandran	Automatic Ration Material Distributions Based on GSM and RFID Technology	In this system, proposed an Automatic Ration Materials Distribution Based on GSM (Global System for Mobile) and RFID (Radio Frequency Identification) technology instead of ration cards. To get the materials in ration shops need to show the RFID tag into the RFID reader, then controller check the customer codes and details of amounts in the card. After verification, these systems show the amount details. Then customer need to enter they required materials by using keyboard, after receiving materials controller send the information to government office and customer through GSM technology. In this system provides the materials automatically without help of humans	GSM and RFID Technology

V. SYSTEM ARCHITECTURE

The following fig shows the block diagram for smart ration card system. This system consists of camera for scanning customer's AADHAR card. Camera is connected to raspberry pi. The customer's details scanned by camera are sending to the database of Raspberry pi. After getting customer's data into database ration will be allocated to the authenticated person. Solenoid valve connected to the raspberry pi through relay. Motor M0 connected to L293D motor driver will give the ration allocated to person. Solenoid valve will lock after the allocated ration given to the person. Finally person gets status of ration to his account on mobile phone by using GSM. Only authorized person (shop keeper, tradesman) can operate the database.

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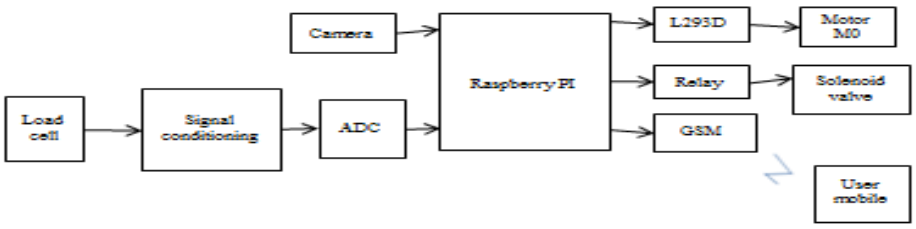


FIG. 1 SYSTEM ARCHITECTURE

A. Raspberry Pi:

1) Broad cam BCM2835 SoC
2) 700 MHz ARM1176JZF-S core CPU
3) Broadcom video core IV GPU
4) 512 MB RAM 4 x USB 2.0 Ports
5) 40 x GPIO
6) SPI bus with two chip selects
7) Power requirements: 6000mA up to 1.8A@5V via Micro USB or GPIO Header

B. Load Cell (0-30 Kg):

1) Rated output (MV/V): 2.0±0.15
2) Capacity: 30kg
3) Temperature effect on (%RO/^{0}C): 0.003
4) Operating temperature range (^{0}C): -35~+80
5) Input resistance (Ω) : 402±6
6) Output resistance (Ω) : 350±3

C. Motor (10 RPM DC Gear):

1) 10RPM 12V DC motors with Gearbox
2) 3000RPM base motor
3) 12gm weight

D. L293D motor drive:

1) Power supply: over FRC connector 5V DC
2) External Power 9V to 24V DC
3) Dimensional Size: 44mm x 37 mm x 14mm (lxbxh)
4) Temperature Range: 0^{0}C to +70^{0}C

V.RESULTS

Sr. No.	Rice		Precision
	Amount selected by user (gram)	Amount received through system (gram)	
1	250	248	247.0
2	250	247	
3	250	246	
4	500	495	495.3
5	500	496	
6	500	495	

Table1 calculating precision of this system

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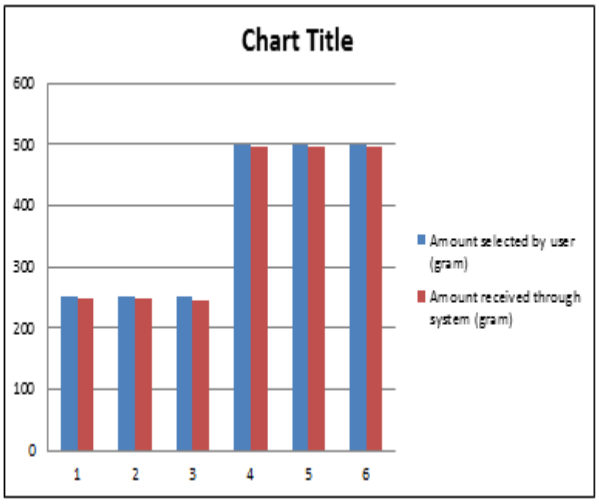


Figure 2 graph showing actual and expected grain weight

VI. CONCLUSION

This system is more secure and maintain transparent than the normal existing system. Influence of fraud falsity data entry intake in the ration database can be maintained simply with the use of this smart ration card system. Only authorized person (shop keeper, tradesman) can operate the database. Customer can be authenticated using the Aadhar card scan through web camera and can get allocated ration after barcode authentication. If customers don't need the allocated ration then it is given to the customer who really needs the ration. The consumer will get the confirmation SMS through GSM and database will be updated in real time. The main advantages of this system are increased corruption government as well as market sector can be prevented if system becomes automated, the customers get their rightful entitlement in terms of quantity. What's meant for them cannot be diverted to the open market because of maintaining the database correctly and generating bills properly, active contribution towards step towards digital India, proposed system replace manual work in ration shop. The system has some limitations like without Proper QR code system cannot display details and Power failure will suspend the system. The system has wide variety of application like similarly digitized web applications, Useful in providing transparency to both Government and consumers. These systems mainly useful in government ration distribution system to avoid corruption in ration/public distribution system to some extent. It is possible to use this system in fuel distribution i. e kerosene, etc. as well as in pesticides distribution

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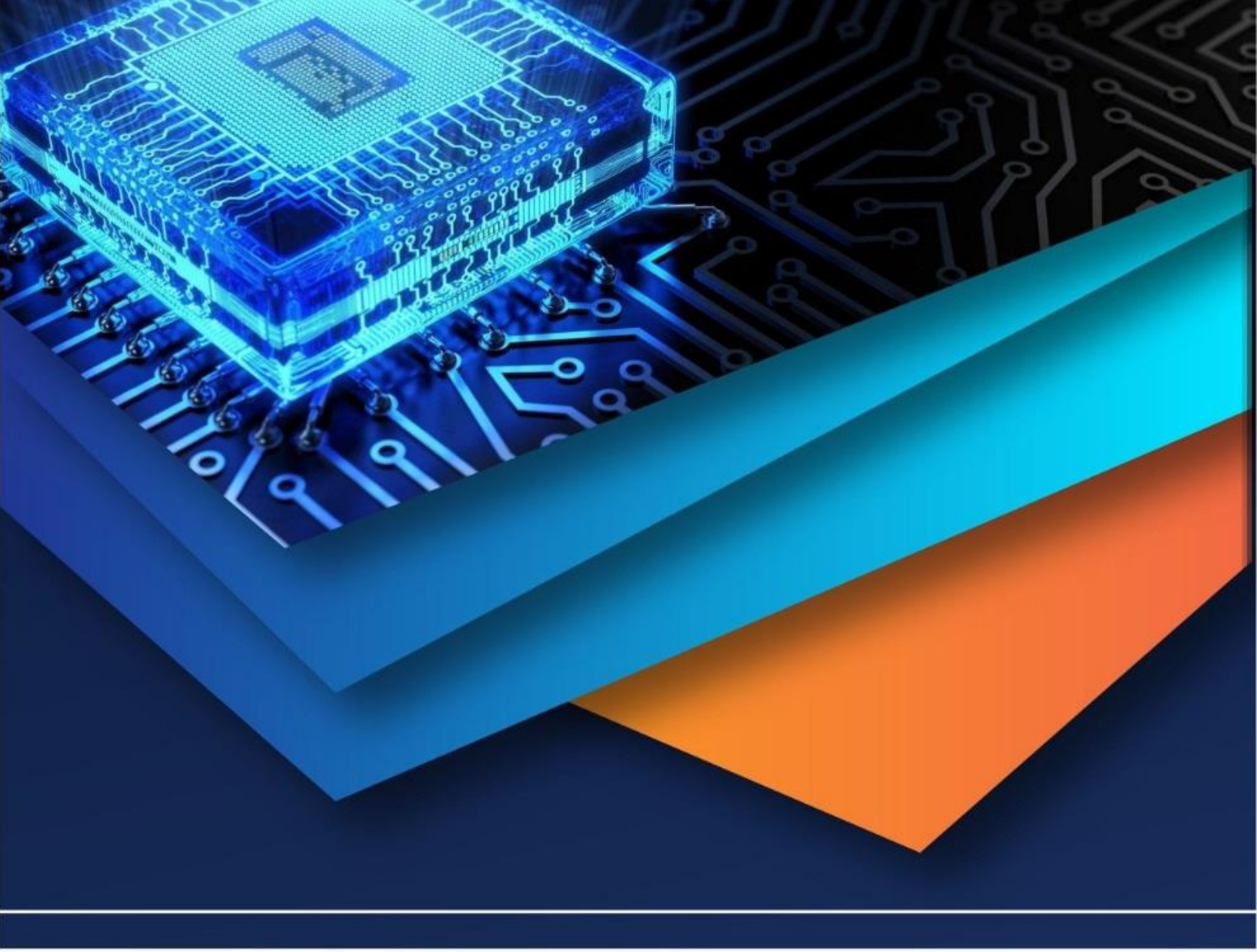
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